HOUSE OF COMMONS
CHAMBRE DES COMMUNES
CANADA

Standing Committee on Natural Resources

RNNR • NUMBER 098 • 1st SESSION • 42nd PARLIAMENT

EVIDENCE

Thursday, May 24, 2018

Chair

Mr. James Maloney

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● (0850)

[English]

The Chair (Mr. James Maloney (Etobicoke—Lakeshore, Lib.)): Good morning, everybody. Welcome to our study on the current state of national energy data, which has proven to be a very interesting topic.

We're grateful to our witnesses for coming today. From the Canadian Academy of Engineering, we have Kevin Goheen and Kathleen Vaillancourt, and from CRIN, we have Joy Romero.

It's nice to see you again. Thank you all for coming.

Joy, I think you're familiar with the process.

We give each group up to 10 minutes for a presentation, and then we open the floor to questions around the table. You can deliver your remarks or answer questions in French and/or English. There are earpieces there should you need them for translation.

Let's start with whoever wants to go first.

Mr. Kevin Goheen (Executive Director, Canadian Academy of Engineering): Good morning and thank you for inviting us.

I'm the executive director of the Canadian Academy of Engineering. The CAE, just by way of background, is one of Canada's three national academies, the other two being the Royal Society of Canada and the Canadian Academy of Health Sciences.

Let's go back to 2011. One of our fellows, Lorne Trottier, believed that it was important to create a project that would help guide Canada toward deep greenhouse gas cuts, so he financed, through his family foundation, a project that eventually became the Trottier energy futures project. The project went on for about five years and it wrapped up in 2016. When it did finish, it was under the management of the CAE and some contractors we had hired to project-manage the report. It was seriously peer-reviewed at the end of the day, and the results came out in 2016.

As part of the project, there were two primary mathematical modelling teams, Kathleen Vaillancourt's company and another company based here in Ottawa called whatIf? Technologies.

I won't go into the details or conclusions of the report. That information is available on our website if people are interested. However, in the process of doing the modelling and having all the models communicate with each other and provide us with useful results, the modelling teams found a number of major shortcomings in the data that is available. That is why we're here today: to talk about the problems that we encountered during that work.

With that, I'll pass it over to Kathleen.

Ms. Kathleen Vaillancourt (President, ESMIA Consultants Inc., and Representative, Canadian Academy of Engineering): Thank you again for inviting us here.

The point we want to make about the current state and future of national energy data is obviously in relation to our modelling activities, which are our core activities. Models, in fact, are great tools to support policy-making, but they are very necessary when it comes time to analyze very complex issues, such as managing major energy transitions to reduce greenhouse gas emissions without compromising economic growth and taking into account social preferences.

Energy system models, in particular, are more important for many reasons. The two most important ones are, first, to understand the magnitude of the problem, which is not necessarily obvious to the public in general nor even the government officials we are working with. The second thing is to explore and identify the most cost-effective pathways that would allow us to achieve ambitious greenhouse gas emission reduction targets, like the one Canada has proposed for 2050, and reach a low-carbon economy, which would be healthy.

All over the world, the results coming from these models are increasingly used to inform policy-makers, but also industries and any organization or individual who could be impacted by a change in the energy supply-and-demand dynamics, by energy prices, or by greenhouse gas emissions and their impact. Actually, the specific categories of models we are using right now are used in more than 70 countries around the world already, for both energy and climate policy analysis. However, the relevance and usefulness of these models are strongly dependent on the input data to start with. This is why it's very important and quite urgent—according to us—that Canada puts in place a program or an organization, or whatever entity, that would ensure good access to good quality data that are consistent and comprehensive for the needs we have, so that we can better help with policy-making and make the public understand the issues regarding climate change and the magnitude of the problem to solve.

In our brief, we have listed some of the most important gaps we have faced during the TEF project, and also different projects. We have been doing this kind of analysis for 15 years now. The intention here is not to repeat all of them—there's the brief for that.

Basically, gaps are more or less everywhere in all the dimensions of the data we need, including our very first starting point, which is the energy balances provided by Statistics Canada—the report is called "Report on Energy Supply and Demand in Canada"—which exist for the 13 provinces and territories. They are incomplete. They do not capture the emerging energies like biofuels or wind energy, and so on. There are many Xs all over the place, especially at the provincial level. At the aggregated level for Canada it's not too bad, but at the provincial level it's very difficult, especially in the industrial sector, and especially regarding the refined petroleum product production, trade, and so on. It almost doesn't exist anymore in the Atlantic provinces, or even in the western provinces.

The report data are not supported by more detailed and reliable statistics on the technology stocks that are behind the data on energy consumption. The office of energy efficiency, for instance, provides more detail on energy used by subsector and so on, but the technology stocks and so on comes from a survey that we know doesn't cover the full sector, so we are never sure if we can rely on these statistics or not.

We need the full bunch of data regarding the technical and economic attributes of technology that we put in our models.

● (0855)

The Canadian models we are running right now show 5,000 technologies used in each region, in each province in technology, so we have to look at these specific parameters one by one within a large diversity of sources, including reports, scientific papers, Ph.D. theses, websites of retailers, and even physical visits to retailers. I don't know how many times I've gone to Reno-Depot looking for specs of a new technology, the cost of the best-selling furnace for an apartment, and so on. It's a huge job to be able to compile a database for these models even in an ideal world, because these models are very much data-driven and this is very time-consuming.

Right now, in situations where the data are difficult to access, we spend a lot of time looking for data, trying to reconcile conflicting information, trying to fill the gap with our own assumptions, trying to validate these assumptions with experts in the field, and so on. Having access to better data would allow us to spend more time developing the model itself and implementing fancy stuff like smart grid and smart buildings, things that we don't necessarily have the time to do because we are updating our database. We could spend more time studying the problem and trying to provide some pieces of the solution.

Having said that, we have been quite successful in building a good database for Canada, but it required an intense effort for more than 10 years through consulting and research projects. That's why we can use the model today for policy analysis, but this work never finishes because every year we have to update the data and the energy balances, and we have to update the database each time a new technology comes on the market. For example, there was a big announcement recently on this new technology to make aluminum without process emissions. We are just looking forward to integrating that into our models, but we currently don't have data for that.

The last point we would like to make, which is not in our brief, is that we think that, along with the necessity of having an organization that would ensure better access to data and better quality data, we need to make the collaboration between data providers and data users stronger, because right now it's a bit difficult. We send emails and we write to data providers like StatsCan, in particular. Sometimes we don't even get an answer, or sometimes we get an answer, but three weeks later, with a copy-paste of a footnote of a table that is already in the report and that we have already read 10 times.

This is a bit difficult, when we try to know more about what is behind particular data, so a stronger collaboration would be better for us to better understand the data and how to use them, but it would also be better for the government, because then you know more about our needs and it's easier to set up the priorities, because obviously we would not be the only ones who will use this data. Many people are looking to have something similar to what we are suggesting.

I don't know if you want to add something.

● (0900)

Mr. Kevin Goheen: I think we're out of time, so thank you very much.

The Chair: Thanks very much.

Ms. Romero, the floor is yours.

Ms. Joy Romero (Vice-President, Canadian Natural Resources Limited, and Chair, Clean Resource Innovation Network): Good morning. Thank you for inviting me to speak here today on behalf of the Clean Resource Innovation Network.

I'm here as the chair of CRIN. I also am the vice-president, technology and innovation, at Canadian Natural Resources Limited, which was the fourth-largest R and D investor for all industries in Canada in 2016, and the leader in oil and gas.

We use facts and data every day to make decisions. We want to be confident in the integrity and relevancy of that data. The challenge is to know what our goal is, what we need to measure to know if we have met our goal, what the leading indicators are that we can measure to control and ensure that we are progressing towards our goal, what tools we can use to analyze the data to allow us to make decisions to achieve our goal, and what control measures we can put in place to ensure we continue to meet or exceed our goal.

In the context of CRIN, our goal is for Canada to be the global leader in clean hydrocarbon production from source to end use. CRIN is a network. We are the glue, the connector of all the incredible innovation institutions, including universities, industry, government research bodies, entrepreneurs, incubators, accelerators, and financiers across our country.

I have seen in the reports from this standing committee that you understand that Canada's energy sector is an innovation success story, and one that you believe should continue. We, as industry, through CRIN, are accelerating technology commercialization by creating a technology pool, by sharing our gaps much more openly and articulately than ever before. Our data from COSIA, Canada's Oil Sands Innovation Alliance, has told us that when we do this, we significantly increase the quality of solutions that come to us.

When we as industry develop a path to commercialization with an entrepreneur, we immediately de-risk that technology and make funding easier, be it private or government. Clean tech developed in Canada is marketable globally, growing a strong, carbon-competitive, diversified Canadian economy.

Through tough times we have continued to invest in technology and innovation. In 2016, the oil and gas sector conducted 75% of the $2 billion invested in clean-tech research in Canada. According to the "State of the Nation" report, the oil and gas sector increased investment in R and D from 2009-15 by 1,400%, while the country as a whole declined.

Building on the knowledge of others is a fundamental component to accelerating commercialization. To date in Canada, this is not something that we have done well. Across this country, I have seen the same thing being invented over and over again in our research institutions.

As a country, we do not have the human resources, financial capital, or time to waste. With a better understanding of the industry's priorities and gaps, improved connectivity, and knowledge sharing across the network, we are creating a more focused effort by innovators, governments, learning institutions, and investors, including end-users. This results are a more effective and efficient use of time, money, and talent, thus driving better results.

The 2050 challenge, according to the World Business Council on Sustainable Development is to have nine billion people not just living on the planet, but living well and within the limits of the planet.

While OECD countries will likely see demand for fossil fuels decrease, non-OECD countries are projecting increased demand for all energy sources. Meeting this increasing global energy demand is where Canada can play its traditional role. Think of the possible global GHG emissions reductions when the technologies developed in Canada—that reduce GHGs by 20%, 40%, 60%, 80%, and even 100%—are deployed globally.

Through technology and innovation not only are we globally competitive and carbon-competitive, but we can play a lead role in reducing emissions both at home and abroad so that the full spectrum of Canadian energy—non-renewable and renewable—can be realized in Canada and globally, with Canadian know-how.

Innovation in the oil and gas sector is our strength, and it can spawn a new clean-tech sector focused on some of the world's greatest challenges related to the use of non-renewable fossil fuels. Canada's oil and gas sector has entered a new phase, where it is the disruptor, where the escalating effects of innovation and technology take hold, and Canada's leadership as a responsible developer of our natural resources is secured. Innovation will allow Canada to become the global supplier for responsibly developed energy, meeting growing needs with significant reductions in GHGs.

● (0905)

In its comments on the "Report of the Expert Panel on the Modernization of the National Energy Board", the Canadian Association of Petroleum Producers expressed the industry's position on the issue of energy data.

Industry provides a significant amount of data to the government, including Statistics Canada, Environment and Climate Change Canada, Natural Resources Canada, and the NEB, as well as provincial authorities. Better use can be made of the information that is provided in terms of what is made available to the public, and likewise within government. Energy data provided to the government should be consolidated and rationalized so that duplication at the federal level is eliminated. The federal government should also strive to engage in sharing data and information with provincial authorities to maximize the value of the information and analysis that is already in government hands.

One of the biggest challenges facing technology and innovation is the lack of real-time data. This is a challenge for the entire innovation ecosystem, including government. Government is a strong partner with industry, but while government does a good job of monitoring financial outcomes, it is much weaker at documenting and tracking innovation outcomes. Traditional metrics such as the SR and ED program and patents are insufficient as they do not capture the whole picture. For instance, as an industry we are increasingly shifting away from patenting and are providing technology in the public domain to improve industry performance as a whole.

The data used in STIC's "State of the Nation" report is years old. We need to be able to see where we are now, and where we are going. What we need is a data communications platform that is searchable in real time, uses data analytics, and will connect all superclusters and innovators to a more fulsome picture of innovation in Canada. We need connectivity that is live and that captures all R and D activity, including activity for companies with less than 20 employees, which is currently not being captured. These companies are responsible for a large part of Canada's R and D, and this needs to be captured and linked to the larger ecosystem.

Traditional statistics are still important, but being able to take the pulse of Canada's innovation ecosystem at any given moment in time will tell us if we have met or are on track to meeting our goal to grow SMEs into large global corporations diversifying our economy and creating jobs.

I see every day the game-changing technologies being developed in our industry. I see how we are reducing GHGs. I see the value we create. I am proud to work in oil and gas.

Why am I proud to work in oil and gas? It's because I know the facts. Quite simply, Canada and the world do not know the facts well enough and it is leading to misinformation about our industry. Non-factual information is being widely spread, negatively impacting the reputations of governments, industry, and the hard-working people of the oil and gas industry. It is important that we have current, accurate, and meaningful data that can be used by a wide variety of audiences, both at home and abroad.

As important as it is to have good data, what we do with the data is even more important. There is a role for government and a role for industry in telling our collective story. The final piece in developing a plan is how to tell our story and renew people's faith in Canada and Canada's energy industries.

I believe that the single best thing that the government could do to work with industry is to develop a sustainable data communications platform that is searchable in real time, uses data analytics, and connects all the superclusters and innovators to give a more fulsome picture of innovation in Canada. This will facilitate better decisions and growth in innovation, get a bigger bang for the buck for both the government and industry in funding innovation, and provide Canadians and the world with a better understanding of how we are continuing to demonstrate leadership through developing clean technologies to reduce GHG emissions related to non-renewable fossil fuels so that the full spectrum of energy can be realized in Canada and globally with Canadian know-how.

Thank you.

● (0910)

The Chair: Thank you very much.

Mr. Tan, you're going to start us off.

Mr. Geng Tan (Don Valley North, Lib.): Thank you, Chair.

Thank you, witnesses for being here with us.

My first question is for Joy Romero. You mentioned in your statement the lack of real-time data. What do you see as the main barriers for achieving better and more timely access to energy data in Canada?

From your notes, I see your network believes that society will benefit more from new technology and innovation when the sector, the oil and gas industry as a whole, works well together.

Given the highly competitive nature of the energy industry in Canada, how can you foresee the sector players being willing to share data to make the industry more effective?

Ms. Joy Romero: As an industry, we already have a long history of collaborating. You can look at how, in the oil sands, for example, it's over 30 or 40 years of industry collaborating as we've gone on. You have really deep collaborative sharing, as in Canada's oil sands innovation, where there is a commitment that every technology associated with various things is openly shared across that group.

We have also learned inside of that, that when we move that data to the public, the solutions we get back to close our needs with respect to greenhouse gases, for example, are so much more powerful. We can go to pilot with 30% of the solutions coming back, where normally it's only 2%. Within three to six months of receiving a solution, when we are very clear with the public and put out that data, much better solutions come back.

That overrides the competitiveness, because in Canada, we don't compete with each other. We compete with other basins. At $20 a basin from Eagle Ford, for example, what do we need to produce in Canada at $20? We believe we can produce at $20 with a much smaller greenhouse gas footprint, because we are already within 5% of an average global barrel for just the oil sands alone, let alone the fact that we have average global barrels as well. If you look at that whole net footprint for Canadian oil and gas, it is already significantly low.

We've already learned that we do that very well collaboratively, so that's not new. What is new that's happening right now in Canada is that we have the formation of the five superclusters, for example. Each of those superclusters—I guarantee you, because I've been talking to all of them, because CRIN is a non-government-sponsored supercluster—is developing communication platforms and platforms in which to share data.

If all of them are done separately, you will end up with five separate and different communication platforms, and NRCan's clean technology communities platform is already being developed. We could put all of these on a national platform, because what happens when you have government-sponsored organizations, whether we like it or not, we know that at some point in the future, some of those superclusters are not going to exist. What's going to happen with all that data and that open sharing on those platforms when that happens?

Canada can take that leadership to create a sustainable innovation, data, and communications platform, and then that grows. Regardless of the government organizations and whether accelerators or superclusters are developed, we still have that long-lasting continuous database that Kathleen was talking about, because we all suffer from that. If we can add open datasets to it, then anyone can grow from that knowledge. That data is protected by the person who has already developed it. Those protections are in place. The ability to take that, share it, and build on knowledge, that's the lifeblood; that's what makes things grow. We can talk about having collaboration, but unless data moves, it's not real or substantive.

● (0915)

Mr. Geng Tan: Thank you.

My second question goes to the Canadian Academy of Engineering. It's nice to hear your model has been used in 17 countries.

From your statement, and also from other witnesses, the calls for a new Canadian energy information agency are getting louder and louder. Based on your experience as an engineering academy, how badly and urgently does Canada need such a domestic energy information agency? There must be a high cost to build such an information agency, or such an administrative agency. How can we afford to build and maintain such a system?

Ms. Kathleen Vaillancourt: It's really crucial for many reasons. We are not the only ones doing modelling in Canada. There are other very good modelling teams, and they have the same problem. On top of the modellers, there are all the energy analysts. We had a few meetings on the academic campus of the University of Montreal and invited different stakeholders. Everybody agreed that we need it.

Regarding the form it should take, the budget, and so on, I haven't done my homework on that so I don't have a strong opinion. Ideally, of course, it would be a mini-EIA, like in the U.S. We understand it cannot be that big or built overnight, but it should be something similar.

Kevin may have some estimates on a tentative budget.

● (0920)

Mr. Kevin Goheen: One of the papers we referenced in our brief was Michal Moore's paper, "A Proposal to Create a Pan-Canadian Energy Information Organization". That paper indicated that the U. S. EIA had an annual budget of $122 million U.S. for fiscal year 2016. I would argue that a similar organization for Canada would be somewhat less than that. I don't know if you want to use the one-in-ten model that I tend to use for everything, but in terms of the overall problem that Canada and the world is facing on this, $13 million a year isn't very much.

The Chair: Thank you.

Mr. Falk.

Mr. Ted Falk (Provencher, CPC): Thank you, Mr. Chair, and thank you, witnesses, for coming to committee this morning and for your testimony here. It's been very informative.

Ms. Vaillancourt, in your presentation you said you have access to data, but that a lot of it is conflicting data. Can you give this committee some examples of that conflicting data?

Ms. Kathleen Vaillancourt: It is happening at different levels. Sometimes I think it's happening because some organizations finish their data updates sooner than others. For example, the office of energy efficiency relies on StatsCan data, but StatsCan may update their data faster, so for the same oil consumption in one sector you will not get the same numbers.

A lot is also happening between provincial and national data sources. Sometimes it's even totally incompatible, not only in terms of energy but also in terms of emissions. The emissions inventory in Quebec is not at all the same as the Quebec portion of the "National Inventory Report", so it becomes very difficult to try to match all of this.

Mr. Ted Falk: Standardization of reporting would be helpful, then.

Ms. Kathleen Vaillancourt: Yes, between provinces and at the national level.

Mr. Ted Falk: Very good.

When you calculate GHG reductions in an industry and in a sector, do you also take into consideration the sequestration by our vast amount of forests and natural vegetation?

Ms. Kathleen Vaillancourt: We could. We didn't include it in the TEF project, but our models can do that. Normally we work in collaboration with people who have better models for dealing with this issue particularly, but we use their supply curve for sequestration as a potential in our models.

Mr. Ted Falk: Can you get accurate data on that resource?

Ms. Kathleen Vaillancourt: I know less about this area, but I'm sure it's also an issue, because we take the output of other models for that particular sector.

Mr. Ted Falk: You talked about certain sectors not providing good data, and you mentioned biofuels and wind. Would solar fall into that category as well? Do you have data on solar?

Ms. Kathleen Vaillancourt: It depends on the data. All wind and solar power plants are documented in Canada. That's not a problem. However, the energy balance that Statistics Canada is providing for all types of energy—so starting from production, import, export, conversion to energy, and end-use sector—I didn't see it very recently, but it never covered the emerging energy. Even biofuel ethanol was not there. It's only the conventional data source.

Also, I think that the renewable electricity is aggregated. It is only one row, so you have to figure it out differently.

Mr. Ted Falk: Okay.

In your opinion, from your organization, where would you like to go? What do you think would be a good source that you should be able to access for clean, reliable data?

Ms. Kathleen Vaillancourt: It would be a comprehensive energy balance, by province, to start with. We don't have any alternatives. We try to fill the Xs by looking at the past. The Xs are not always in the same place year after year. Our friends and colleagues from whatIf? Technologies, have a simulation model covering a longer historical part than us. By building year by year from history, you can try to fill in the X, by looking at different years when more data was available. There are a lot of tricks and cross-checks to be able to....

● (0925)

Mr. Ted Falk: Ms. Romero, I'd like to ask you a few questions, as well.

You talked about real-time data in your presentation. As an industry, I think you provide an awful lot of data, whether that is to municipal, provincial, or federal jurisdictions. Everybody wants information from you. Do you believe that the data exists for industry to make better solutions, if it were consolidated?

Ms. Joy Romero: Yes, if the data was consolidated and understood, or if it was calculated in the same way. I think this difference between provincial and federal data is important. What's so nice about our industry is that every single measurement point in our plants and facilities is reported to somebody. They are completely open. However, the way in which they're calculated is not always the same, so the way it goes to provincial governments... and we standardize the calculations. Those things are important. Our operations data and all of those things are reported monthly. From a real-time point of view for that kind of access, it's there, although it's not as easy to find as it should be for people like Kathleen.

As industry, our issue is the way in which it's used or received. If it's not understood at the source, it can be misinterpreted as well, especially when it goes into modelling of different types, because people have to make decisions and it's not necessarily transparent as to how it's done. We can definitely do a better job of the consolidation of that kind of data.

When we talk about real-time data for large industries, like ours, that's easy, but it's the real-time data for innovation of the small companies.... The majority of our businesses in Canada are actually SMEs and the data that they generate on the innovations and improvements that they're doing with respect to new technologies or even their operations data, that data is basically invisible.

Mr. Ted Falk: For small companies, I would say that the burden of providing that data would be significant—

Ms. Joy Romero: It is.

Mr. Ted Falk: —as a percentage of their overall cost of operating. Do you see a way forward for companies like that to provide data at a reasonable cost to them?

Ms. Joy Romero: Even a small company, if it's operating, is going to have done a heat and material balance—sorry, I'm an engineer, too.

You can't operate efficiently without generating data. It's how you share that data easily and how it can be received easily that actually makes the difference. It's by having those kinds of central repositories that it can actually be aggregated.

It's not difficult. Every operation is going to have done a synopsis of their performance, at least in that month if not weekly, and now most of us actually have process control of something or other. Data is live, so you can make those kinds of decisions at basically any point in time, and we are getting much more predictive.

When I was on STIC and we were looking at data and trying to create the "State of the Nation" report, which is not dissimilar to a lot of the things here, it was a question of where to find that data but also how to talk about where you're going. All of the data is aged if it has come through Statistics Canada. It's a fantastic resource, but it's aged.

Now with the pace at which we innovate, if you're trying to say, "This is where Canada stands" or "This is where we have the capacity to grow," you need to see what people are working on today. If, as Kathleen said, the new aluminum process has reduced emissions to close to zero, which is what it sounded like, and you don't have that in your modelling for where Canada is going, your modelling isn't accurate and it creates a much bleaker picture of where we are and what we do as a country.

● (0930)

Mr. Ted Falk: I have more questions, but I think the chair is going to tell me I'm out of time.

The Chair: He's very perceptive.

Mr. Cannings, it's over to you.

Mr. Richard Cannings (South Okanagan—West Kootenay, NDP): Thank you, and thank you all for being here today.

I want to start with Ms. Vaillancourt and talk about data sharing and openness of data. We've heard a lot about this in past sessions here and today. I know from my previous life working on ecosystem analysis that it was extremely frustrating at all levels trying to get at data, whether you had to pay exorbitant amounts to get it or whether, as Ms. Romero mentioned, it was coming back late and incomplete.

There are also interprovincial differences. I know that in British Columbia I could get some mapping data easily. Some cost a lot of money. I could go to the United States and get anything free and quickly. In Alberta it costs hundreds of dollars just to get a map of the municipal boundaries in Alberta.

I'm just wondering if you could talk about the need for some agreement on data sharing within Canada and how that would advance this problem we have with energy data. Then I'll follow up with some other problems, but I just want to get your comments about whether that would help us along the way.

Ms. Kathleen Vaillancourt: Yes. Transparency is also something we have discussed and heard a lot about. It's a real need. For us, it would also be a good way to say that our models are documented, because right now we grab information here and there from so many data sources that each time someone asks me if my database is documented, I say, "No. I have no time." They ask, "Where did you get this data?" I say, "Here and there." Having a central place where you have all this data transparent and public would facilitate things.

The issues in the industrial sector I think are due to confidential data, especially when there's one industry that is only in one province. They don't want to make their data public because you will know that it's coming from them. However, we have done many projects with the industry, so we get their data but we, in turn, cannot make it public. Sometimes we cannot even reuse it for the next project.

How can the industry be convinced to make their data public? I'm not sure, but they can definitely benefit from the results of the analysis. If we show, for example, the potential of this new aluminum technology and the huge role it can have in greenhouse gas reduction scenarios, it's positive for the industry. If the industry knows more of what we are doing and the usefulness of the results we can provide, I'm sure they will be more willing to share their data.

Mr. Richard Cannings: To Ms. Romero, about the proprietary nature of some of this data, we have COSIA where innovation ideas and results are shared, but there are also cases of companies wanting to hold on to certain amounts of data. I just wonder if you have an idea of how Canada compares, for instance, with the United States on proprietary data, and how the United States deal with energy information, and what we can possibly do in Canada to ease that situation.

Ms. Joy Romero: Personally, I don't work a lot in comparison to the U.S., or to Canada. But I do, in my job, evaluate countless technologies on an ongoing basis.

Inevitably, when somebody wants to share something with you, they want you to sign an NDA. The very first thing I say is, no, tell me everything that's in the public domain and convince me enough that I want to sign an NDA. The reality is that for the majority, if their patents are in place, all of their data is already public. If they've been out telling the story about the technology, they already have a whole suite and, mostly, the financial data and performance data is already public. If you have a professor who is already published, their data is public.

I think there's a huge fallacy around what is actually not public. When it comes to operating data, as I said before, there is not an operating point in a plant that isn't reported in Canada, and it's not just in oil and gas. I've worked in natural resources my entire life across this entire country. We are such a transparent country in our reporting, so this fallacy of what's not in the public domain is actually a fallacy.

What it isn't is aggregated well and transparent for people to be able to use. That's the difference.

● (0935)

Mr. Richard Cannings: Back to Ms. Vaillancourt, I just want to switch from the data sharing to the data standardization part, and ask how difficult it is now between both the different data sources you have to go to instead of having one, and how you often have to massage that data for months to get it to be right. Again, I've worked between provinces and it's hell.

Maybe you could comment on that, and how a national standard for data would help things.

Ms. Kathleen Vaillancourt: Yes, that's necessary as well because this is the way we start. I always, personally, prefer to start with national data sources that cover all provinces first, even if there is a lot of missing information, and then I complete the national with provincial sources. At least, I start with a uniform platform for all provinces, but there is so much information that is missing.

The problem comes when you have to do a project for a specific province. We are working with the Quebec government right now to help them to achieve their target on greenhouse gas emissions for 2030 and 2050, and I had to recalibrate the whole model on their emissions inventory, which is not the same at all as the Canadian one. I have almost reallocated and renamed all my sectors and I almost had to prepare a new model just for this, which doesn't fit anymore with the rest of the Canadian model. It's very difficult.

The Chair: I'm going to have to stop you there. I'm sorry.

Mr. Whalen.

Mr. Nick Whalen (St. John's East, Lib.): Thank you very much, Mr. Chair.

Mr. Goheen, you said earlier in your remarks that the U.S. spends $120 million on the energy information agency, and we should somehow target about one-tenth of that.

That just seems totally underfunded to me. This doesn't seem like an exercise that's scalable by population. It seems to be something that's more scalable by the amount of work that needs to be done. We want the same data products. We have virtually the same number of operators. Our energy sector is about 10% of our GDP, and theirs is about 5% of theirs.

Do you want to revise that comment, or make some additional comments?

Mr. Kevin Goheen: I'd be happy to.

It's not a study I've undertaken, so perhaps I spoke out of turn.

Mr. Nick Whalen: Fair enough.

Mr. Kevin Goheen: As they say, order of magnitude would probably be a good estimate, so it would be somewhere between one-tenth of the U.S. budget and 10 times the U.S. budget.

Voices: Oh, oh!

Mr. Nick Whalen: Okay, fair enough. I just wanted to clarify. I didn't want the analysts to be confused that this might be an assessment, because this is one of the questions we have.

Another question we have is how to fund it.

I just want to turn to you, Ms. Romero. You mentioned in your remarks a great statistic, that in 2016, 75% of all clean-tech research in the country was funded by the oil and gas sector. It goes to some of the points that were made in the media yesterday by Premier Notley against the leader of the federal NDP, Jagmeet Singh, about how if you don't realize that the economy and the environment go hand in hand, you're going to fail at both.

Is there some way to extract some of this clean energy spend, some of these research dollars, or some contribution from industry so that we can appropriately fund an organization, with maybe more around $50 million to $70 million a year, that could help harness the value of all this data, warehouse it appropriately, and create the data tools that Canadians and industry need to compete?

Ms. Joy Romero: As industry, we are contributing to the Canadian economy. Obviously, we would be happy to be able to contribute more. I think one of the things to realize when you look at funding for this is that it probably isn't new money that you need to find. My guess is that you have almost every single organization doing some version of this and spending money on it.

By making a central group and removing this role from the countless areas in which it is done, I think you probably wouldn't be far from the dollars required to do this. Obviously that needs to be done.

But certainly, for example, just in the supercluster funding, there is a percentage allowed to do this work. My guess is that, rather than it being done separately by each supercluster, if you went to NRC, NRCan, and provincial groups across the country, you'd see that everybody is doing some version of this but in an isolated platform, each with developers. If you could pull this together and pull those monies, then with whatever additional new monies are there, all of us who benefit from this would have to figure out some way....

● (0940)

Mr. Nick Whalen: I did see in some of the earlier testimony we had that something like 86% of the time of researchers in the data energy field is spent just trying to get the data. Their productive work is only about 14% of the time. They have a factor of savings there maybe of 5:1 that they could leverage for their work. They are still going to have to spend some time at it, but there are probably some savings.

This is what you talked about with consolidating and rationalizing across government to centralize this service.

Ms. Joy Romero: Even in terms of rationalizing, we have ASTM standards on how we calculate a whole bunch of other things. I'll be an engineer again, but why can we not have standards for the way in which these things are calculated? It would make Kathleen's life so much easier, and then we'd also know that we're being told the same story time and time again.

Right now, I hear things that don't make sense to me because things are calculated from different bases. There's just so much opportunity, and all of that is waste. If you can narrow that and take the waste out of the system, I'm not sure there's a lot of new dollars here.

Mr. Nick Whalen: Okay.

I'm not sure if in your prepared remarks you got entirely into the story of Titanium Corporation and their work regarding methane emissions from the oil sands. I'm wondering how an energy and information administration within Canada could assist a company like Titanium to do better work or just assist Canada in better monitoring whether or not it's achieving goals. How precisely would such an agency, in this particular example, help?

Ms. Joy Romero: Titanium I know well. I have been involved with them for the better part of 16 years or so, as they have been bringing their technology through.

They're a pretty typical representation of a Canadian-built technology base. If early on they had been able to find more openly the work that would have been out there, obviously a lot of their initial time would have been saved, and their ability to communicate —

Mr. Nick Whalen: That's great. I want to give Ms. Vaillancourt an opportunity to answer basically the same question.

How would an energy information administration in Canada assist your organization in doing your work? Is there something additional beyond what the U.S. collects that would be helpful, such as lists of scientific studies maybe, or other types of information that the U.S. isn't already collecting? How that would help your organization?

Ms. Kathleen Vaillancourt: It will help you and us to save time in terms of trying to build the data ourselves that are supposed to come from official sources. Especially if it comes already supported in Excel or other files, everything would be easier, because we can write scripts to import these data automatically into our model rather than rendering them one by one and trying to fill in the gaps and so on.

Mr. Nick Whalen: Is there a dataset the U.S. doesn't have that you would like?

Ms. Kathleen Vaillancourt: The U.S. has a lot more data than we do regarding the stock of technology, so that would be good if we could have the same, yes. What the U.S. EIA doesn't have is what the international agency is trying to do with IRENA, the renewable energy agency based in the Emirates: technology briefs. For all new technology innovation, there is someone who takes.... I already did some of them, actually. You take one sector—for instance, a refinery, or a refrigerator, or appliances in the sector—and you build a brief in which you have the description of the different versions of the technology in terms of their efficiency, cost, and how costs could evolve over time. There are two or three pages for each technology. That should come on the market eventually. This, nobody really has.

● (0945)

Mr. Nick Whalen: Thank you so much.

The Chair: That's perfect. Thank you.

Thank you very much to the three of you for joining us this morning. It has been very helpful and very informative. Unfortunately, we're out of time.

We will need to suspend for two minutes and prepare for our next witnesses.

● (0945)

(Pause)

● (0950)

The Chair: We're set to resume.

From the Quebec Environmental Law Centre, we have with us by video conference Karine Péloffy, managing director. From Environmental Defence, we have Patrick DeRochie, who is here with us.

The process is that each of you will be given up to 10 minutes to deliver your opening remarks, and then we'll open the table to questions to both of you. You can deliver your remarks and answer questions in French and/or English, as translation devices are available should you need them.

Mr. DeRochie, why don't we start with you since you're here with us?

Mr. Patrick DeRochie (Climate and Energy Program Manager, Environmental Defence): Thank you.

Good morning, Mr. Chair, vice-chairs, and MPs on this committee. Thank you for allowing me the opportunity to comment on the state of energy data in Canada and to offer my recommendations for future improvements.

My name is Patrick DeRochie. I am the climate and energy program manager at Environmental Defence Canada. We work to defend clean water, a safe climate, and healthy communities, and we challenge and inspire change in government, business, and people to ensure a healthier and prosperous future for all.

Today my presentation recommendations will focus on three key areas: one, improving the aggregation and quality of energy and climate data and its independence and harmonization across departments, agencies, provinces, and territories; two, aligning national energy data with Canada's domestic and international climate commitments; and three, improving national data about the transportation of oil by rail.

Right now Canadians, including businesses, industry, academics, governments, and NGOs like the one I work for, are lacking high-quality energy and climate data. We must rely on either the Canadian government's data, which is limited, incomplete, and non-transparent in its assumptions, or resort to data from other governments like the U.S. Energy Information Administration, or private firms like Rystad Energy. This is not in Canada's national interests nor is it useful for companies trying to invest in Canada, governments trying to make good public policy, or civil society organizations trying to ensure our energy systems protect the environment and human health.

Our energy systems are changing fast. We need credible and reliable energy and climate data to make informed, transparent, and accountable decisions that respect climate science while positioning Canada to prosper in a low-carbon economy.

Right now Canada is experiencing interprovincial feuds and political gridlock over disagreements about energy planning, pipeline projects, and climate action. This could be avoided if we had independent, harmonized, easily accessible, credible national climate and energy data to inform our decisions.

With its boundless renewable resource potential, imagine what Canada can accomplish with quality data to underpin a rapid transition to renewable energy. Imagine the disagreement we could avoid if the NEB, for example, had a pipeline review process that was informed by energy and economic data from a credible, independent federal agency, rather than economic modelling from a report commissioned by a pipeline company. Imagine the economic opportunity if we undertook the modelling needed to develop our full potential for clean technology and renewable energy, instead of relying on dated fossil fuel models that assume the Paris Agreement fails.

Canada can make this a reality but it must start with independent, reliable, harmonized energy data. To get there, I'm going to make the following recommendations.

First, follow through with the NEB modernization expert panel's recommendation to create a new Canadian energy information agency. The agency must have independent governance, be open and transparent, and have a mandate to provide timely public access to high-quality data. It must report quarterly on energy sources, supply, demands, and downstream consumption, and it should make independent government experts available as expert witnesses on energy project hearings.

Furthermore, Canada needs to ensure energy data is free, transparent, and publicly accessible by making it available in granular formats that can be analyzed and disaggregated. We need to reduce the time lag between the collection and publication of energy data. For example, I just checked the StatsCan website this morning to track the supply of refined petroleum products in Canada, and the most recent data I could get was from February, so it's already about three months old.

One of the key recommendations I'd like to highlight is the need to align national energy data with domestic and international climate commitments. As you know, Canada is party to the Paris Agreement to limit global warming to 2° Celsius and to strive for 1.5° Celsius. Under the agreement Canada has committed to reduce its greenhouse gas emissions by 30% below 2005 levels by 2030, and its mid-century strategy aims to reduce emissions by 80% below 2005 levels by 2050, so we're essentially talking about decarbonization around mid-century.

The Minister of Environment and Climate Change stated that these targets are a floor not a ceiling, as the Paris Agreement requires increasing an escalating ambition especially from developed countries like Canada with large carbon footprints.

Unfortunately, the energy data produced by the federal government is not aligned with its stated level of carbon reduction ambition. Every year the federal government as well as investors and businesses rely on Canadian energy demand and supply data that assumes the Paris Agreement will fail. I would just remind you that the failure of the Paris Agreement means that the impacts of climate change become catastrophic and irreversible. Don't just take that from me; that's the consensus view of the world's climate scientists.

● (0955)

For example, the NEB's most recent Energy Futures report that came out in late 2017 has a base-case modelling scenario that assumes Canada will decrease its emissions by just 5% below 2005 levels by 2030. That's just one-sixth of the way to our Paris climate target. The base case also assumes Canada will be using 9% more fossil fuel energy overall in 2030. This is completely out of step with the Paris Agreement and Canada's already weak targets under it.

At the same time that it projects fossil fuel use that assumes the failure of the Paris Agreement, the Energy Futures report also fails to publish variable oil price scenarios. The NEB produced just a single oil price scenario in 2017, one that was high enough to justify more pipelines and oil sands expansion.

It seems to me, considering the difficulties faced by governments, communities, and families whose livelihoods depends on the oil industry, that Canada should be producing energy data that plans for oil price variances like the one we saw in 2014 with the oil price crash. The NEB is doing a disservice to investors, to companies, to governments, and to workers by failing to model scenarios in which oil prices remain too low to justify new oil and gas expansion and investment in the oil sands, like we're seeing today.

These are a couple of examples of the kind of integrated energy and climate data that Canada needs to make informed choices about its energy future. Assuming that the Paris Agreement will fail is irresponsible. Assuming that the oil and gas industry will continue to grow for decades is out of step with the government's own climate targets. An energy agency that neglects to model for the low-carbon transition currently under way around the world damages this country's prospects of excelling in the low-carbon global economy.

There are good, smart, and dedicated people who work at the NEB, but they need to be mandated to include energy supply-and-demand scenarios that are in line with the Paris Agreement and Canada's climate targets under that agreement.

My final comments on national energy data are a bit more niche, but important nonetheless, considering the high profile of the public dialogue around this issue, and that relates to the transportation of oil by rail. Recently Canada has seen tragic accidents like the train derailment in Lac-Mégantic, that have made oil by rail a divisive issue. Canadians are rightly concerned about the movement of hazardous, flammable goods through their communities by train. Increases in oil by rail traffic are often invoked as a reason to build more pipelines under the claim that the volume of oil moved by pipeline and rail is substitutable. "If we don't move oil by pipeline, then it will be moved by rail instead, putting more communities at risk of a derailment" is something we often hear from industry proponents, from some government officials, and from the media. But the oil by rail data we do have in Canada suggests this is not true. If we want to be sure, we need to dramatically improve the quality of that oil by rail data that we do have.

Currently the NEB releases monthly numbers on the volume of Canadian crude oil that is exported to the U.S. by rail. However, the NEB data is presented in aggregate form without sufficient granularity to be of use. For example, the NEB does not track or publish where the crude oil originates, where in the U.S. it is headed, or what kind of oil is being transported, whether it's bitumen, synthetic oil, or lighter crude.

Meanwhile, StatsCan collects data about the movement of liquid fuels by rail within Canada. Like with the NEB, there is no granular data on the type of fuel being transported, where it is being transported, where it originates, or whether it is being transloaded onto tanker, export terminal, barge, pipeline, or going to a refinery. StatsCan has a rudimentary method for tracking the east-west movements of crude by rail within Canada, with loadings from Thunder Bay, Ontario, to the Pacific coast being labelled as the western division, and loadings from Armstrong, Ontario, to the Atlantic coast being classified as the eastern division. In effect, that's not very useful, and we don't know exactly where trains are moving oil either within Canada or to the U.S.

Between the NEB and StatsCan, as well as the Transportation Safety Board, there is a notable dearth of publicly available information about crude by rail movements in Canada. Considering there are widespread public safety, economic, and environmental concerns about crude by rail movements across Canada, a new energy information agency could publish more useful and accessible information. This is vital to an informed debate about the future of oil transportation in Canada. Without this basic data about where and how much oil is being moved by rail, we can't properly protect public safety while ensuring the safe transport of goods and commodities.

Canadians have a right to know what is moving through their communities by rail, how much, and when. The NEB, StatsCan, and TSB should look to the U.S. EIA as a model. It publishes monthly data on the movement of different types of fuels between American petroleum administration for defence districts as well as exports to and imports from Canada. Often those EIA numbers don't match up with the NEB and StatsCan numbers that are being produced.

● (1000)

The three Canadian government agencies should also consider consolidating all of the data about crude by rail movements under a single agency, that new energy information agency. The data collected by StatsCan and the NEB, for example, should use the same classifications, metrics, and measurements to make the comparisons between those movements easier.

In conclusion, I would like to thank the committee for initiating this study. Ensuring that we have high-quality energy data and analysis is essential to good decision-making, and is especially critical in the current context of a rapidly changing energy system. I look forward to the recommendations that result from this study and to commenting on the study in the future.

I'd be happy to answer, to the best of my ability, any questions the committee may have.

Thank you.

The Chair: Thank you.

Ms. Péloffy, we move over to you.

Ms. Karine Péloffy (Managing Director, Quebec Environmental Law Centre): I'm sorry I couldn't prepare a specific submission for my presentation today, but I'll basically be presenting some highlights of a collaborative and multidisciplinary research project on how to translate our international climate commitments into guidance for how we assess projects, policies, and programs in this country. It's a project that was funded by the Metcalf Foundation.

I'll also try not to repeat what my colleagues have said, because some of the materials covered by Ms. Vaillancourt and Mr. DeRochie overlap with what I was going to present. I'll mostly focus on climate information, which to me is the flip side or the dark side of energy information, in the sense that it's the side of the cost and the damages that are overall still invisibly being offloaded on to society as a whole. I think what passes as economic analysis in this country could be more accurately described as a listing of benefits. Unless we're disclosing the costs and the damages that are being socialized through the privatization of those benefits, we're only just listing benefits, not doing actual economic analyses.

I have two preliminary remarks before diving in on climate. I guess the gold standard in law—because I am a lawyer—in terms of providing information would probably be to adopt the Aarhus Convention, which was adopted by European countries. It provides for a right to information, a human right to information in environmental matters.

I also support, as Mr. DeRochie pointed out, one of the main recommendations of the expert panel on the NEB modernization, which is the creation of an independent energy information agency that could provide credible and critical data information and analysis for informing energy policy and strategy. I fully support this recommendation, and I'm somewhat sad that it has not been picked up in the current law reform exercise being undertaken by the federal government.

Put simply, I fear that not having good climate information allows what I call the second wave of climate denialism, in the sense that now pretty much everyone seems to agree that the problem is real—well, maybe not everyone south of the border—but we still fail to recognize the scale and the pace of change that is required to try to avoid the most dangerous aspects of climate change. That means we risk focusing our actions on the wrong priorities. We risk focusing on making reductions at the margin, trying to make our oil slightly greener, slightly more efficient; whereas what's actually required right now is transformational change.

We risk locking in "greenhouse gas intensive" infrastructure, which will make it almost impossible for us to reach our commitments in the future. As an example—one that is in the news a lot these days—the existing Trans Mountain pipeline has been in the ground since 1950. That's roughly 70 years. If we put a new one in the ground, I'm guessing the company will expect to exploit it for the next 50 to 70 years, and that's way past the deadline by which we need to be fully decarbonized. Not having that information allows some to make propositions that say this pipeline goes hand in hand with the environment. I think having good information would disqualify that statement.

Very briefly, we can understand climate change and what we can do about it by using models. I'm very happy to see that Madam Vaillancourt was testifying for the Trottier project. I'll skip the quotes that I was going to use from them.

Basically, models are essential to understanding the climate and energy systems. However, the outputs of those models are greatly impacted by the parameters, the data, and the assumptions that feed into them. In this space, transparency is absolutely crucial.

I won't repeat what the Trottier foundation had said, but I will summarize the words of Catherine Potvin and the scholars who were behind "Re-energizing Canada: Pathways to a Low-Carbon Future". Their key finding number two was that governments should "support the establishment and improvement of technology-rich, open source, well-documented scenarios and optimization models that can be used by researchers to explore pathways and inform policy and investment decisions."

● (1005)

As has been stated, the models that are being used in Canada, whether it's the National Energy Board or Environment and Climate Change Canada, are more like black boxes. They are considered proprietary and we cannot really see what went into the machine. We just get an output and we can't test its robustness. That leads to less than ideal assessments of decisions.

Noteworthy, in our research project we reached out to all the teams that do modelling of decarbonization pathways like the Trottier energy futures project. They all gladly shared their data with us so that we could compare. The only one that did not answer our call was Environment and Climate Change Canada. The devil is in the details, and the details are not accessible.

To contrast with that, I would briefly say that best practices in this field seem to be how the U.K. approaches its climate policy based on carbon budgets, and how it teams up with universities about using models. I will also refer to resources by the California Air Resources Board, which seemed more transparent than what we have available in this country right now.

Another aspect—now leaving the technicalities aside—that is missing is an analysis of the political economy of energy systems, power structures, vested interests, and so on. It has been found to be a very important factor in the transition towards low-carbon energy in Germany, and it seems to be an issue that Canada grapples with. There are legal scholars, like Jason MacLean, who are writing about the problem of regulatory capture. Some are now saying that the oil industry may have created a deep state in Canada. I think these are statements deserving of investigation and may be one of the reasons we don't have such good information.

Now, trying to get more into the weeds and details, there are two issues which, I think, highlight some important deficiencies in the Canadian system when it comes to climate. One is land-based carbon. Internationally it is becoming more evident that carbon stored in forests and biomass is very important, and increasingly the importance of soils is being recognized as a very important source of carbon storage.

Canada with its huge land mass is the second-largest holder of peatlands. We store up to 150 gigatonnes of carbon, and that's probably an underestimate because our mapping of peatland in Canada is lacking. I think efforts have been started in Quebec and will be soon in Ontario, but overall, we don't really know where they are. Some other jurisdictions know where they are. One area that is particularly rich in peatland and, therefore, is an important carbon reservoir is the area where the oil sands are being exploited.

It's an important issue. Land use emissions associated with the exploitation of the oil sands was assessed in the United States by the Obama administration when they assessed the upstream emissions associated with the Keystone pipeline way back when. It is also included in the way that California designed its clean fuel standards, by assessing the whole life cycle of fuels in an open source, transparent, and accessible model. It has reviewed 67 types of Canadian crudes only, and their values for carbon intensity are among the highest in the world. Maybe some in Nigeria are higher, but we have the highest in the world. One of the reasons is the importance of those land use emissions associated with the exploitation.

The most recent research I saw from 2015, still in the U.S., said that they had previously underestimated the greenhouse gas association with land use disturbance. They forecasted that based on the forecasted production from open pit mines and in situ installations in Alberta between 2012 and 2030, the result would be between 107 million tonnes and 187 million tonnes of greenhouse gases only from land use disturbance. I repeat, no jurisdiction in Canada is assessing these emissions or counting them, and these emissions were also not included in the assessment of upstream emissions for the Trans Mountain pipeline. I fail to see how a foreign jurisdiction is better placed than we are to assess things that happen on our territory.

Another example—

● (1010)

The Chair: I'm going to have to ask you to wrap up pretty quickly.

Ms. Karine Péloffy: Okay.

Very quickly—maybe we can go deeper in question time—the social costs of carbon is a way of trying to assess the damage associated with the emission of one tonne of carbon into the future for that specific year, and then discount it back to a present value today so that we can compare it with costs and benefits today.

It is widely used in cost-benefit analysis. Actually, it's the basis of regulatory impact analysis for climate action in Canada. So long as it is used, I think it requires a serious upgrade along the lines of what the National Academy of Sciences recommended in the U.S. in 2017.

It's controversial, first, because a stable climate is not a good to be traded. It's the foundation of survivable—you might say—societies, but as long as economic benefit analysis remains trendy, I think it is important to put a cost to climate damage and to do so in a transparent way that actually shows the ethical and the justice trade-offs that happen in considering these things.

Very briefly—

The Chair: Very, very briefly, please.

Ms. Karine Péloffy: Actually, I'll stop here and expand in the questions if someone is interested in this.

The Chair: Perfect. Thank you.

Mr. Serré.

[*Translation*]

Mr. Marc Serré (Nickel Belt, Lib.): Thank you, Mr. Chair.

Ms. Péloffy, Mr. DeRochie, thank you for your testimony, and for your research and data collection work.

My first question goes to you, Mr. DeRochie.

Some witnesses have told us that other countries are much more advanced than Canada in collecting data on renewable energy. Do you agree with that statement? Do you have any recommendations on specific things that the government could do to improve data collection in the renewable energy sector?

● (1015)

[*English*]

Mr. Patrick DeRochie: A lot of my research applies to the oil and gas industry a lot more than to renewable energy. I can make some brief recommendations on this, but I just don't have the level of detail on the renewable sector as I would on the fossil fuels sector. The short answer is that, yes, other countries do have much better quality, reliable, credible, aggregated information about renewable energy, including the U.S. EIA. Germany and the U.K. are also good examples.

I think one area where Canada could improve is in assessing interprovincial electricity sharing. There are a lot of savings that can be made by transmitting electricity across provinces, such as hydro from B.C. and Manitoba to provinces that are using coal-fired or gas-fired power plants, for example, in order to reduce emissions. This would also be a cost-savings for a lot of provinces, as that hydro is incredibly cheap.

The other thing is that I don't think we've aligned the pan-Canadian framework with Canada's renewable energy potential. If you look at Canada's wind potential on the Prairies, if you look at Canada's solar potential in a lot of areas, if you look at Canada's tidal potential on the east coast, for example, we're not really factoring in how useful that can be in 2030 or 2050. I think we should be looking at the opportunity and at the economic opportunity of creating those jobs associated with renewable energy, instead of focusing so much attention on the economic costs and benefits of fossil fuel expansion.

Mr. Marc Serré: We talk about Canada's north, and we look at northern Ontario. I know you've done more with regard to the oil and gas. I don't know if you've done mining or the potential of developing the north more. There's huge potential moving forward. Do you believe that we should be making more investments in data, more investments in geo-mapping, to try to unlock some of this potential in northern Canada and across the country?

Mr. Patrick DeRochie: First, I apologize that I'm not answering your questions in French. You probably assumed that I could speak French from my last name, maybe.

I don't do a lot of research in the mining sector. I would recommend that the committee talk to someone from Clean Energy Canada. This year they released a report that—

Mr. Marc Serré: What about oil and gas in northern Canada and the potential there?

Mr. Patrick DeRochie: Is the question about whether we need more data on it?

Mr. Marc Serré: Yes. We need investments in government to get more data.

Mr. Patrick DeRochie: I would make the argument that increased exploration and development of oil in Canada's north, whether it's land-based or in the Arctic, is a no-go. It's a showstopper. We should not be exploring for more oil right now, considering that Canada is already blowing through its climate targets and is not set to meet those climate targets.

We need to start looking at the fact that there will be a decreasing global demand for oil in the near future. It's not just environmental organizations saying this. Companies like Shell are starting to say that. We're looking at peak oil demands globally by perhaps 2025 or earlier. So to spend money and resources on exploring for more oil in remote areas or in the Arctic is a terrible idea. You'll just end up with other stranded assets or wasted money, because we won't need new oil if we meet the Paris Agreement.

[*Translation*]

Mr. Marc Serré: Ms. Péloffy, in terms of energy data, do you think that, if we invest in better data collection, it will help us reach our targets under the Paris Accord?

Ms. Karine Péloffy: In an ideal world, that would be the case.

If we had more data, I believe that, in the short term, it would show how far we are from reaching the objectives and it would show, unfortunately, that we probably have more problems than we thought.

We are actually not counting a number of sources of emissions: fugitive emissions, and emissions coming from changes in land use. If we were to really focus on that, we would realize that our challenge is probably even greater. However, it could certainly give us a much clearer idea of the direction we have to take in order for our actions to be more effective.

Let me quickly go back to the questions you put to Mr. DeRochie. I am no expert in what other countries are doing either, but I can say that, in the United Kingdom, in Denmark, and in Germany, the transition is much further along; I believe that this is because of information and information systems that are much more robust.

As for looking for information on the North, I hope that this will be done in collaboration with the people who live in the North. Perhaps they do not have the same ideas on the development they would like. In my view, one of the avenues of inquiry should be to find out where the reservoirs are, the peatlands we hear so much about, the great carbon reservoirs. Then we should try and keep those areas free from development. If we were to go to those places, we would definitely run the risk of letting a climate bomb escape into the atmosphere.

● (1020)

Mr. Marc Serré: Thank you very much.

[*English*]

The Chair: Mr. Falk.

Mr. Ted Falk: Thank you, Mr. Chair.

Thank you, witnesses, for your presentations to the committee this morning.

Mr. DeRochie, I'll start with a few questions for you. You said that there will be a decreased demand for oil in the future. Can you cite a study that would show that?

Mr. Patrick DeRochie: Sure. I would refer to Carbon Tracker Initiative's annual studies. I would refer to a recent report produced by Shell, the oil company.

Statoil recently put out an annual report showing that they expect decreased demands. They also changed their name to Equinor, because they recognize that the future will be in renewable energy. They want to get away from being labelled as an oil company.

Mr. Ted Falk: Can you explain to me why they would continue to want to develop the oil sands if there is going to be a reduced oil demand? This is their money that you suggest they're throwing away. Why would they do that in a decreased oil environment?

Mr. Patrick DeRochie: As you know, most of the global oil majors, whether it's Statoil, Repsol, ExxonMobil, or ConocoPhillips, have actually pulled out of the oil sands. They've sold all their assets to Canadian companies, recognizing that it's not economical to invest further in exploration and production. They've already made an exodus from the oil sands, those global oil majors, recognizing that there are cheaper oil fields to develop elsewhere, easier to get to and easier to transport.

Mr. Ted Falk: Would that be because of our regulatory burden here?

Mr. Patrick DeRochie: No. I would say that it's because the oil sands have some of the highest-carbon oil—

Mr. Ted Falk: What would they say?

Mr. Patrick DeRochie: They would say that it's because of the high carbon of Canada's oil in the oil sands—it's some of the highest-carbon oil in the world—and that it's difficult to transport.

Mr. Ted Falk: I believe they would say that, because of the regulatory environment in Canada today, it's not economically feasible to pursue development at this point. I've met with these folks.

Mr. Patrick DeRochie: As have I, and that may be what they say, but I think they are looking at a business case here.

Mr. Ted Falk: Right. It doesn't exist under this environment.

Mr. Patrick DeRochie: It doesn't exist, not because of the regulatory environment but because of the costs of producing oil. It's extremely expensive to invest in the oil sands and it's a long-term investment, so when they're looking at where they're going to put their oil for current and future oil production, which is becoming more limited, they're going to look at areas like Texas, like the Permian Basin, for example, where they can drill for shale, get it quickly, get it out, and it doesn't require a 30- or 40- or 50-year timeline for return on investment. They're going to look at places like Norway or Saudi Arabia, where you can just tap the ground and the oil comes out. It doesn't require massive mines or massive investments in in-situ projects as it does in Canada.

Mr. Ted Falk: In one of your recommendations, you say that the reporting should be quarterly and then a couple of bullet points down, you say there's too much lag time, even though you called Stats Canada this morning and received quarterly information. There seems to be some contradiction there in what you're asking for that isn't happening and what is happening.

Mr. Patrick DeRochie: Yes, I think we can separate it. The StatsCan numbers we referred to were the supply of liquid fuels in Canada. I think that can be done on a monthly basis, which the U.S. EIA is already doing.

Mr. Ted Falk: But you've asked for quarterly reports.

Mr. Patrick DeRochie: For the quarterly reports, I would like to see updates on the alignments of Canada's targets with our energy supply-and-demand scenario. I don't think it's reasonable to do that kind of work on a monthly basis, but I think it is reasonable to do it on a quarterly basis, with increased investments in energy information.

Mr. Ted Falk: You also said you're familiar with or you work with clean water solutions. In Saskatchewan, SaskPower and the Saskatchewan government did their Boundary Dam project. They invested, I think, $1.4 billion in carbon capture there. What are your comments on that project?

● (1025)

Mr. Patrick DeRochie: On carbon capture...?

Mr. Ted Falk: No, specifically the Boundary Dam project by Estevan, Saskatchewan.

Mr. Patrick DeRochie: I can't speak to that project in particular. My organization is based in Ontario and doesn't do a whole lot of work in the prairie provinces, but as for carbon capture and sequestration in general, these investments require federal subsidies or government subsidies in other countries. They have not proven that they're effective, that they succeed in reducing emissions. They haven't proven that they can be deployed on a large commercial scale. If we are going to look at ways to reduce emissions, there are much cheaper ways that create more jobs and more economic activity by simply investing in renewables or energy efficiency than investing in CCS.

Mr. Ted Falk: In your calculations of meeting our climate objectives, are they taking into consideration the carbon sequestering that our vast land mass and our forests and our vegetation spawns, like the peat moss that Ms. Péloffy has referred to? Are those being considered in your calculations of meeting our carbon commitments?

Mr. Patrick DeRochie: They are not. That would not be compliant with the United Nations framework for assessing carbon emissions country by country, and Canada is not responsible for doing that to reduce emissions. That's just the forest existing and sequestering carbon, so there's not any climate action on Canada's part by simply not cutting down a forest that stores carbon.

I would defer to Karine on that question as well, because she probably knows a lot more about the boreal forests and its climate benefits than I do.

Mr. Ted Falk: Sure. I'll shift my questions to Karine.

Karine, you talked about Canadian energy data being difficult to find, and how we're not as transparent as perhaps a lot of other countries are. On the east coast, we import a lot of Middle East oil, which is not subject to the same regulatory environment as our Canadian oil companies, and is also not necessarily agreeing to Paris climate objectives. What are your thoughts on how that could negatively impact our Canadian industry?

Ms. Karine Péloffy: I'll just answer the forest question first and then jump to that one.

Actually, unfortunately in recent years due to climate change we've had more intense forest fires and more insect outbreaks, which means that right now our forests are sources of emissions. They're emitting; they're not absorbing, unfortunately. That's something we probably need to look at, especially when we think of developing massive extractive industries in those forests.

The Fort McMurray fire was close to $9.9 billion in damages, so maybe it's something we need to look at, and not just from a climate perspective. In the future we will need to be looking into that because the Paris Agreement does speak of reaching a balance between sources and sinks of emissions, so technically if we make human enhancements to natural sinks that are permanent, and verifiable and credible, we may be able to credit ourselves with action but there's no detail on that yet under the Paris framework.

As to the Middle Eastern oil, I don't agree with everything in the Middle East, mostly because women like me wouldn't have rights, but that's a completely different issue. It remains that for them getting oil is just making a hole in the ground and it flows out and, therefore, leads to way fewer greenhouse gas emissions on a life-cycle basis than our own oil. That's something that the work—

Mr. Ted Falk: Do you support the importation of Middle East oil?

The Chair: We're going to have to wrap it up here, so can you answer that very quickly, please?

Ms. Karine Péloffy: I support that we use the least greenhouse gas-intensive forms of oil for the time that we cannot avoid using it, but I'm for getting off oil as fast as possible.

The Chair: Mr. Cannings.

Mr. Richard Cannings: Thank you, both, for coming before us here today.

I'm going to start with a high-elevation question for Mr. DeRochie, and perhaps Ms. Péloffy could step in as well.

I was struck by your comment that good data could lead to less political gridlock. I think all of us here would wish that were true. Perhaps I could just frame it. Here we're talking about a possible new energy information system for Canada. Perhaps you could just comment on what sort of information system would give everybody more trust in political decisions around energy futures, trust from both sides, people concerned about the environment and people concerned about industry.

For instance, what kind of good data could we send to British Columbia and Alberta that would get them on the same page and to say, yes, we should do this instead of that? Perhaps that's a bit too much to ask, but could you give just a general framing of what sort of data we need?

● (1030)

Mr. Patrick DeRochie: That's a good question. Why don't I use Kinder Morgan as an example, since it's so topical right now and you did bring up this political gridlock between Alberta and B.C.

In the NEB's review of the Kinder Morgan projects they did not consider global oil demand and supply scenarios that we're talking about that are aligned with the Paris Agreement, with Canada's own policies and commitments. They did not allow economic evidence that showed the cost and benefits of making this investment instead of alternatives during the review. They did not allow consideration of the impact of tankers going up the B.C. coast. They did not consider the downstream emissions of the projects. They did not allow cross-examination of the witnesses who wanted to testify there and of Kinder Morgan's lawyers.

They considered the upstream emissions but not the downstream emissions. The entire process involved Kinder Morgan presenting evidence and then all of the other intervenors, whether they were pro or against the pipeline, responding to Kinder Morgan's evidence. There was no testing of the evidence. There was no testing of the assumptions.

What I think we need is an energy information agency or regulator that provides the information independently and then allows both sides, the proponents and the public and the intervenors, to respond to that independent, third-party credible evidence that could come from the government and from expert witnesses, instead of being forced to respond with limited resources to a report commissioned by the proponents of the company, which obviously has an interest in skewing the numbers and hiding the datasets that they use.

Mr. Richard Cannings: Ms. Péloffy.

Ms. Karine Péloffy: I would agree with everything that's been said so far. I think providing for analyses of alternatives to projects, plans, and policies is one function that would be very important for an independent information agency, because right now, too often, alternative scenario development is left in the hands of a proponent who has all the interest in the world in portraying alternatives to this project as not feasible or impossible.

What sort of system can we trust? When we come to science, often peer review is one way to trust. That would be one key point. Ensuring the independence of the institution would be key. I think that's a failure across the board in the federal law reform we're undertaking right now. It should be independent of both government and industry so that we can trust more what they do.

To go back to the fact that our current information is not transparent and proprietary, Thomas the Apostle believed in Jesus only when he saw the marks. I think if we can open up those models and see what's inside them, then we can trust them better. This is better than having someone say that although they're not going to show us what's in the box, we should go ahead and trust them anyway because the output is good. That doesn't work anymore.

Mr. Patrick DeRochie: I'd like to follow up on that question a little bit if I have time.

Mr. Richard Cannings: Can I just reframe it a bit? You talked about granular data and modelling. I'm wondering if both of you could comment on the value of having granular data that everybody can agree on. This agency could provide some modelling, but it would also allow people on either side to do their own modelling and the data would be the same.

Mr. Patrick DeRochie: I'd like to defer to Karine on the granular data question, but I wanted to comment on MP Falk's remark about the regulatory system. I would argue that the reason that it was dysfunctional and that we're seeing this gridlock we're having right now is that we did not have integrated energy and climate data. When we were assessing these pipelines, there was no overarching holistic framework of aligning the greenhouse gas emissions associated with these projects with Canada's own targets.

Right now, we still have three pipelines. On Enbridge Line 3, we're looking at 565,000 barrels per day. We're looking at Keystone XL, which is 830,000 barrels per day and then Kinder Morgan, which is about 600,000 barrels per day more. We're looking at about two million barrels per day more of oil from Alberta that Canada wants to export. In what world is this possibly going to align with Canada's climate targets? In what world will there be demand for this high-cost, high-carbon oil?

Unless we actually have an energy regulator and energy information agency that provides the public with information on how you integrate these two competing interests, then we're going to have the dysfunction that we saw. A regulatory review of the pipeline should not be the forum for a debate about climate and energy data. It should be a forum like this done by an independent agency, not in the adversarial setting of a pipeline review.

● (1035)

Mr. Richard Cannings: Ms. Péloffy, would you care to comment on that and how we need good data to develop and monitor our climate target?

Ms. Karine Péloffy: On the granularity of data, I would give the question over to modellers, but I think it's a good idea. The idea of having all of this open to the public is not only to build trust but also because we're dealing with probably the most complex problem we've ever had to face in the history of humankind. Having many brains being able to look at the same thing and maybe come up with different ways to look at it has to be a good thing.

I would agree with what Mr. DeRochie said. One of the key things that is happening in this whole law reform around environmental assessment, one of the things where there's great consensus in industry, indigenous people's representatives, and environmental organizations—it just seems the government is not so keen on it—is the idea of strategic assessments. Having an independent information agency could feed into the strategic assessments, where we can see broadly what sources of technologies are available to us and which technologies should be going forward at a higher level. This way we would not have these debates in regulatory or environmental impact assessment processes, which are not the best places to have them.

The Chair: Thanks.

Ms. Ng, we'll move over to you.

Ms. Mary Ng (Markham—Thornhill, Lib.): Thank you, both, for giving us your perspectives today on this study.

I'm going to pick up a little on where my colleague Mr. Cannings started, which is your input on a data system that will provide credible data that has the confidence of Canadians and all stakeholders, those who care a lot about the country meeting its climate change targets, as well as those in industries who are necessarily going to be a part of the transition. Indeed, in this country, there has to be a transition. It's the responsible thing to do.

Do you have any advice for us around data indicators? You talked about the inadequacy of the data that's out there, or that it's not capturing the other side, the other side being what we should be looking at, what should be tracked, and where some of those sources of data may exist. We've heard from many people who said that the sources exist, but the analysis of it or the culmination of it is what doesn't.

Maybe you could both talk to us about some of those indicators we ought to be looking at in the course of coming up with a reliable data system for this country.

Mr. Patrick DeRochie: Sure. I'll mention a couple of examples.

One is in the area of methane emissions from the oil and gas industry. This is a gas that's about 80 times more potent in the atmosphere than carbon dioxide. It's extremely important that we avoid this to reduce emissions, to avoid climate change. Scientific studies, peer review studies, and academic studies show that the methane emissions from the oil and gas industry, whether they're from leaks or intentional releases, are significantly higher than what provincial and federal agencies are reporting.

We need to start—

Ms. Mary Ng: Doesn't that get collected now? Is it not an indicator that's collected?

Mr. Patrick DeRochie: It does, but it's not being collected properly.

Ms. Mary Ng: Okay.

Mr. Patrick DeRochie: We have satellite data. We have these independent studies that show that emissions are as much as seven to 15 times more than what's being measured by the federal government.

Not only does this mean more emissions, but it also means that fixing these leaks, making these repairs, making these improvements to the oil and gas system means you're saving the methane and gas, and you're creating jobs, doing repairs, and improving operations in the process.

The second thing I would mention is the idea of carbon budgets. Right now the U.K. is a good example of who's doing this. We essentially need to look at Canada's targets, look at where we need to be in 2050, and then assign a budget of greenhouse gas emissions to each sector, or perhaps even each province, that slowly and steadily decreases toward 2050 and how we're going to get to that 80% or 100% reduction.

● (1040)

Ms. Mary Ng: What would be the data indicator to collect in that?

Mr. Patrick DeRochie: We have it right now. We have the greenhouse gas inventory. We have provincial facility-level and industry-level emissions.

Ms. Mary Ng: Okay.

Mr. Patrick DeRochie: We need to have an overarching framework in which we see how they interplay and how they get down to zero.

I think in the future, when we look 10 or 20 years down the road, we'll see we're going to run into intersectoral, interprovincial disputes. If I'm one province that is doing a good job of reducing emissions and meeting my climate targets, while another province is allowing certain industries to grow and blow through those targets, it becomes this issue of interprovincial and intersectoral equity, where one industry or sector is pulling its weight and doing more, while the other is being let off the hook and not achieving Canada's objectives because of it.

Ms. Mary Ng: And good data...?

Ms. Péloffy.

Ms. Karine Péloffy: I agree with what's been said before. I would also add an emphasis on land use emissions. We can just ask what the Americans are doing, and copy it across.

I'm not sure it's a data indicator, and to an extent it already exists, but it's that concept of the social cost of carbon that is being used in regulatory impact analysis for regulatory action to mitigate climate change. I think this tool should be perfected, but it should be used way more across the board. I feel like the conversation is often one about "Oh, my God. Doing something for the climate is going to be way too expensive." Maybe it's flipping the conversation and saying, "Doing nothing for the climate is going to be very expensive."

I think that's very important, that tool. Because climate change is so intangible and no one can see a tonne of greenhouse gases, it's difficult for people to understand the difficulties we're in. We're in a capitalist system. We understand money. Putting a dollar sign on the costs associated with climate change would go a long way to having more informed decision-making. Actually, we could do an economic analysis that doesn't just look at however many jobs we're losing and GDP, but also looks at what we're losing on the other side.

Ms. Mary Ng: I've asked this question of others who have appeared before us. It's about our capacity for analysis of the data. Let's assume that in a future state we have this wonderful ability to have coordinated data, with the right data being collected at the national level in collaboration with other jurisdictions.

What is your view of the need for the analysis of the model? Just give me a perspective. Do we have it? Are we short...?

Mr. Patrick DeRochie: I would just say that I would commend the government for the investments they've made in budget 2018 in firming up scientific data and capacity, not only in greenhouse gas emissions but also across water, fisheries, and the Environmental Assessment Agency. There was a billion-dollar investment made. We would like to see that secured and extended in order to have that scientific economic modelling and data capacity.

Ms. Mary Ng: Ms. Péloffy.

Ms. Karine Péloffy: Yes, I think we definitely need to increase our capacity for analysis and to also include analysis of the political economy. I work more in the context of environmental assessments, and when I compare what we produce in Canada to what's being produced in the U.S., I am ashamed. The level and depth of analysis is much greater in the U.S., even if I don't agree with them on a whole lot of other things.

When I look at the upstream analysis of greenhouse gases for the Trans Mountain pipeline, let's say, I see a number that's plucked out of context. We don't know why, or how, or what the analysis is of what's behind it. I think that could be way more robust, but also, to be quite clement, we are dealing with the world's most complex problem. There are best practices, but no one has hit the money pot of having it perfect. We can actually lead the world in this field.

Ms. Mary Ng: Speaking of best practices, give us one or two. We're not perfect. What do we look to?

Ms. Karine Péloffy: In the U.S., there was one specific assessment in the context of the Colorado roadless rule. It was about a mine. There were court cases around it. The court rejected the initial assessment. The second assessment that was done included the social cost of carbon in it and was a much more robust and very detailed analysis. When they look at jobs, they don't just say there are 15 jobs for two years. They actually look at the long-term effect of those jobs and whether people in the area would have other jobs.

That assessment was way more detailed than what we can do.

● (1045)

The Chair: Thank you very much, both of you, for joining us this morning. It was very helpful for the work we're doing on this study.

We will adjourn for the day and see everybody on Tuesday.

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